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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/766,558	01/19/2001	Quaeed Motiwala	PA000103	1085

23696 7590 07/21/2004

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER	
LIU, SHUWANG	

ART UNIT	PAPER NUMBER
2634	11

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/766,558	MOTIWALA ET AL.	
	Examiner	Art Unit	
	Shuwang Liu	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 05/14/04 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

(1) regarding 102 (e) rejection:

Applicant's argument –" Applicants submit that simply because Honkasalo teaches that minor frames of data are "transmitted in parallel using multiple Walsh channels", this does not necessarily mean that different channel elements are assigned to demodulate different portions data symbols from a common frame of data."

Examiner's response – Honkasalo et al. discloses a framing techniques for multi-rate CDMA communication system, wherein the number of predetermined major frame structures that correlate with the physical data rate are in accordance with the IS-95 communications standard (see claims 1-4). Honkasalo et al. teach a method for processing a frame of data, comprising: partitioning said frame of data into at least a first and second portions of data symbols (S0 and S1); assigning a first channel element to modulate data symbols of said first portion of data symbols (column 7, line 27-line 58); and assigning a second channel element to modulate data symbols of said second portion of data symbols (column 7, line 27-line 58). Furthermore, Honkasalo et al. teaches that a different Walsh code is used to spread

each minor frame (each channel) and than the spread signals are transmitted at the same time rate over the air to mobile station. Although Honkasalo et al. only teach a CDMA transmitter (modulator), it is inherent that the basic structure of a CDMA receiver (demodulator) is an inverse of the CDMA transmitter (modulator) according to the CDMA IS-95 standard and admitted art. On page 8, lines 6-10, of the specification, the admitted art discloses that "In accordance with the CDMA communication technique, each receiver signal is spread in accordance with a PN code at the transmitting source. Moreover, each channel in the received signal is also assigned a Wash code which is used to Walsh cover the information in the channel at the transmitting source." Honkasalo et al. teaches that a different Walsh code is used to spread each minor frame (each channel) and than the spread signals are transmitted, that is, assigning a first channel element to modulate data symbols of said first portion of data symbols (for example, S0) by using a first Walsh code; and assigning a second channel element to modulate data symbols of said second portion of data symbols (for example, S1) by using a second Walsh code. This process is a channelization using orthogonal spreading in the transmitter side. A receiver has to receive the transmitted spread spectrum signal. It is inherent that the receiver despreads the chips by using the same Walsh code used at the transmitter, that is, the receiver has to assign a first channel element to demodulate data symbols of said first portion of data symbols using the first Walsh code used at the transmitter and assign a second channel element to demodulate data symbols of said second portion of data symbols using the second Walsh code used at the transmitter.

(2) regarding 103 rejection:

Applicant's argument – The rejection under 35 U.S.C. 103 (a) "were based on impermissible hindsight gleaned from the present application, and that the Office Action fails to demonstrate any motivation to combine the cryptic teachings of the cited references.

Examiner's response –In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5, 6, 9-16, 20, 23-27, 30, 31 and 34-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Honkasalo et al. (US 5,859,843).

As shown in figure 3, Honkasalo et al. discloses a communication system, a method for processing a frame of data, comprising:

(1) regarding claim 1:

partitioning said frame of data into at least a first and second portions of data symbols (column 4, lines 38-43);

assigning a first channel element to demodulate data symbols of said first portion of data symbols (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation); and

assigning a second channel element to demodulate data symbols of said second portion of data symbols (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(2) regarding claims 2, 20, and 25:

demodulating said first and second portions of data symbols by correspondingly said first and second channel elements (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(3) regarding claim 5:

partitioning said frame of data into a plurality of portions of data symbols (column 4, lines 38-43);

assigning a plurality of channel elements to demodulate data symbols of correspondingly said plurality of portions of data symbols (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation)

(4) regarding claim 6:

demodulating said plurality of portions of data symbols by correspondingly said plurality of assigned channel elements (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(5) regarding claim 12:

partitioning each of said plurality of frames of data into a plurality of portions of data symbols (column 4, lines 38-43);

assigning a plurality of channel elements to each of said plurality of frames of data to demodulate data symbols of correspondingly said plurality of portions of data symbols of each of said plurality of frames of data (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(6) regarding claims 16 and 30:

means for partitioning said frame of data into a plurality of portions of data symbols (column 4, lines 38-43);

means for assigning a plurality of channel elements to demodulate data symbols of correspondingly said plurality of portions of data symbols (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(7) regarding claim 31:

means for demodulating said plurality of portions of data symbols by correspondingly said plurality of assigned channel elements (see column 4, lines 44-54, it is inherent because the demodulation process is a inverse of the modulation).

(8) regarding claim 36:

means for partitioning each of said plurality of frames of data into a plurality of portions of data symbols (column 4, lines 38-43);

means for assigning a plurality of channel elements to each of said plurality of frames of data to demodulate data symbols of correspondingly said plurality of portions of data symbols of each of said plurality of frames of data (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(9) regarding claim 40:

means for demodulating the data symbols in each of said plurality of portions of data symbols of each of said plurality of frames of data correspondingly by said plurality of assigned channel elements (see column 4, lines 44- 54, it is inherent because the demodulation process is a inverse of the modulation).

(10) regarding claims 9-11, 13-15, 23, 24, 26, 27, 34, 35, 37-39:

wherein the number of said plurality of portions of data symbols is based on a data rate of data symbols of said frame of data as recited in claims (see figure 3).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3, 4, 7, 8, 17-19, 21, 22, 28, 29, 32, 33, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honkasalo et al. (US 6,064,662) in view of Kawable (EP0998052).

Honkasalo et al. discloses all of the subject matter as described above except for specifically teaching,

(1) regarding claims 3, 7, 17, 18, 21, 28, 32, 41 and 42, receiving said frame of data via a radio frequency receiver front end; correlating with at least a data symbol in said frame of data in accordance with timing of at least one assigned finger; and using a result of said correlating in said first and second channel elements for said demodulating.

Kawable, in the same field of endeavor, teaches a radio frequency receiver front end (201), correlating (208) in accordance with timing of at least one assigned finger and demodulating (215, 216 and 217) as recited in claims.

It is well known that the CDMA system must have the front end, correlator and demodulator in order to recover the received information. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the basic elements, such as the front end, correlator and demodulation, as taught by Kawable et al. in the receiver of Honkasalo et al. in order to allow the receiver to demodulate spread spectrum signal with high data rate and bandwidth efficient.

(2) regarding claims 4, 8, 19, 22, 29, 33 and 43, writing to, and subsequently reading from, demodulated data symbols from said first and second channel elements, a RAM in accordance with a deinterleaving function in said communication system.

Kawable, in the same field of endeavor, teaches writing to (215), and subsequently reading from (215), demodulated data symbols from said first and second channel elements, a RAM (215 and 301) in accordance with a deinterleaving function in said communication system.

It is desirable to reduce hardware gate size by using Ram to perform deinterleaving function. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the RAM as taught by Kawable et al. in the receiver of Honkasalo et al. in order to reduce the cost and hardware gate size for demodulating spread spectrum signal with high data rate and bandwidth efficient.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Shuwang Liu
Primary Examiner
Art Unit 2634

July 13, 2004